THE TECHNIQUE OF APPLYING EXERCISES OF VARIOUS DIRECTIONS IN RECREATIONAL SHAPING CLASSES WITH WOMEN OF 21-35 YEARS

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Annotation

In the health-improving recreational physical culture, shaping is one of the most popular directions, and a large group of women of the first period of adulthood is engaged in it. The effective conduct of the recreational exercises shaping with women of 21-35 years requires consideration of the conjugacy of somatotype and physiological characteristics of the female body.

The purpose of the study is to theoretically substantiate and experimentally test the method of applying exercises of various orientations in shaping activity with women 21-35 years old, based on their somatotype and phase character of a specific biological cycle. In the process of research, the following methods were used: theoretical analysis and synthesis of data from scientific and methodological literature, anthropometry, somatotyping (according to the method of M.V. Chernorutsky), functional diagnostics methods, pedagogical testing, pedagogical observation, pedagogical experiment, statistical methods for processing materials. The research involved 48 women of the first period of mature age, which were engaged in shaping.

The results of the study: in accordance with the peculiarities of the distribution of women of 21-35 years depending on their body type, the overwhelming majority of them were characterized by a normal body type. Distinctive somatotypical features of physical development, body composition, functional status, physical fitness level of women aged 21-35 years who want to be engaged in the shaping activity were identified. An individually differentiated method of improving shaping classes for women aged 21-35 years based on their somatic-type features and the phasic biorhythms of the female body has been developed. Favorable dynamics and statistical reliability of changes in indicators of morphofunctional state and physical fitness of the studied contingent engaged in the shaping activity (in comparison to each other and to initial data) were established.

Conclusions: the effectiveness of individually differentiated methods of recreational shaping activity is confirmed by a statistically significant ($p < 0.05$) improvement in almost all recorded indicators of physical, functional condition and physical fitness level of women aged 21-35 years.

Key words: differentiation, individualization, somatotype, ovarian-menstrual cycle, women of the first period of mature age, shaping.

Анотація

У оздоровчої фізичної культури шейпінг є одним з найбільш популярних напрямків, численною є група жінок, першого періоду зрілого віку, які займаються шейпінгом. Ефективне проведення оздоровчих занять шейпінгом з жінками 21-35 років потребує врахування пов'язаності соматотіпіческіх і фізіологічних особливостей жіночого організму.

Мета дослідження – теоретично обґрунтувати та експериментально апробувати методику застосування навантажень різної спрямованості в оздоровчих заняттях шейпінгом з жінками 21-35 років, на основі врахування їх соматотипа і фазності специфічного біологічного циклу. У процесі дослідження були використані методи: теоретичний аналіз і узагальнення даних науково-методичної літератури, антропометрія, соматотіпірованіе (за методикою М.В. Черноруцкого), методи функціональної діагностики, педагогічне тестування, педагогічне спостереження, педагогічний експеримент, статистичні методи обробки матеріалів. У дослідженнях брали участь 48 жінок першого періоду зрілого віку, які займаються шейпінгом.

Результати дослідження: відповідно до особливостей розподілу жінок 21-35 років за типом статури переважна їх більшість характеризувалося нормостенічним типом статури. Виявлено відмінні соматотіпічні особливості фізичного розвитку, компонентного складу тіла, функціонального стану, фізичної підготовленості жінок у віці 21-35 років, які бажають займатися шейпінгом. Розроблена індивідуально-диференційована методика оздоровчих занять шейпінгом для жінок 21-35 років на основі врахування їх соматотіпічних особливостей і фазності биоритмики жіночого організму. Встановлена сприятлива динаміка і статистична достовірність змін у показниках морфофункціонального стану і фізичної підготовленості досліджуваного контингенту, які займаються, в порівнянні і вихідними значеннями.

Висновки: ефективність індивідуально-диференційованої методики оздоровчих занять шейпінгом підтверджується статистично достовірним ($p<0,05$) поліпшенням практично всіх реєстрованих показників фізичного, функціонального стану і фізичної підготовленості жінок у віці 21-35 років.

Ключові слова: диференціація, індивідуалізація, соматотип, оваріально-менструальний цикл, жінки першого періоду зрілого віку, шейпінг.

Аннотация

В оздоровительной физической культуре шейпинг является одним из наиболее популярных направлений, многочисленная группа занимающихся женщины первого периода зрелого возраста. Эффективное проведение оздоровительных занятий шейпингом с женщинами 21-35 лет требует учета сопряженности соматотипических и физиологических особенностей женского организма.

Цель исследования – теоретически обосновать и экспериментально апробировать методику применения нагрузок различной направленности в оздоровительных занятиях шейпингом с женщинами 21-35 лет, на основе учета их соматотипа и фазности специфического биологического цикла. В процессе исследования были использованы методы: теоретический анализ и обобщение данных научно-методической литературы, антропометрия, соматотипирование (по методике М.В. Черноруцкого), методы функциональной диагностики, педагогическое тестирование, педагогическое наблюдение, педагогический эксперимент, статистические методы обработки материалов. В проведенных исследованиях принимали участие 48 женщин первого периода зрелого возраста, занимающихся шейпингом.

Результаты исследования: в соответствии с особенностями распределения женщин 21-35 лет по типу телосложения подавляющее их большинство характеризовалось нормостеническим типом телосложения. Выявлены отличительные соматотипические особенности физического развития, компонентного состава тела, функционального состояния, физической подготовленности женщин в возрасте 21-35 лет, желающих заниматься шейпингом. Разработана индивидуально-дифференцированная методика оздоровительных занятий шейпингом для женщин 21-35 лет на основе учета их соматотипических особенностей и фазности биоритмики женского организма. Установлена благоприятная динамика и статистическая достоверность изменений в показателях морфофункционального состояния и физической подготовленности исследуемого контингента занимающихся, в сравнении и исходными значениями.

Выводы: эффективность индивидуально-дифференцированной методики оздоровительных занятий шейпингом подтверждается статистически достоверным ($p<0,05$) улучшением практически всех регистрируемых показателей физического, функционального состояния и физической подготовленности женщин в возрасте 21-35 лет.

Ключевые слова: дифференциация, индивидуализация, соматотип, овариально-менструальный цикл, женщины первого периода зрелого возраста, шейпинг.

Introduction. The problem of ensuring a high level of women's health has now become particularly popular. Exercising is becoming more and more obvious and individually necessary part of the lifestyle of every modern woman (Savin, 2017; Skidan, 2018).

Particular attention should be paid to the problematic issue of the health effect of physical exercises, the physiological substantiation of

the improving of health of the female body through physical exertion, the principles of organization and the methodology for dosing them (Pavlova, 2018; Savin, 2017; Vengerova, 2011). Analysis of the scientific and methodological literature (Ershkova, 2015; Mamylina, 2016; Kukoba, 2011; Savin, 2017; Saitov, 2011; Vrublevskiy, 2018; Stewart, 2012) showed that there are very different opinions among researchers regarding the choice of the amount, intensity, and directions of motion activity for women, which requires a more detailed analysis of the criteria for the individualization and differentiation of the health-improving process of the study group.

A large number of various innovative areas and types of sports and fitness activities offer various forms of organizing classes for women (Vengerova, 2011; Savin, 2017; Sokolova, 2014; Tretyakova, 2016). However, the selection of the most effective programs and health-improving techniques is often carried out by coaches subjectively, without sufficient substantiation of the organizational and methodological conditions for conducting different types of physical activities for women of reproductive age (Mamylina, 2016, Skidan, 2014). There is a traditional setting for the use of similar programs for women who do not take into account the individual specific features of the female body (Vengerova, 2011). All of this has a negative impact on the health of those engaged in the physical activity, and more evidence are accumulating on the negative consequences arising from the unwise compromises of the leveling concept in the training process (Savin, 2017; Stewart, 2012).

In the health-improving recreational physical culture, shaping is one of the most popular directions, and a large group of women of the first period of adulthood is engaged in it. The main goals of this women which are wished to be reached through physical activity are the stabilization of health, maintaining high level of working capacity and also changing and improving the looks of their bodies, since within this age group the problems are primarily associated with physiological involutional changes in the female body, which leads to deterioration in both morphology and the functional status of women, which significantly affects their quality of life (Kukoba, 2011; Mamylina, 2016; Vrublevskiy, 2018; Skidan, 2018).

The process of involutional changes can and should be managed with the help of rational physical activity, contributing to the harmonious work of all organs and systems of the body (Vengerova, 2011; Mamylina, 2016; Savin, 2017; Drabik, 2006; Keefe, 2006). In this regard, there is an urgent need to develop physical recreational programs and techniques that provide the optimal motion regime for women, taking into account their individual characteristics.

The hypothesis of the present study was the assumption that conducting recreational exercises of shaping with women of 21-35 years old will become productive if their somatic-type features and the phasic biorhythms of the female body are taken into account.

The purpose of the study is to theoretically substantiate and experimentally test the method of applying exercises of various orientations in recreational exercises of shaping with women 21-35 years old, based on their somatotype and phase character of a specific biological cycle.

The material and methods. Participants: 48 women aged 21-35 years old participated in the study, working on the basis of the research laboratory of modern fitness and health-improving technologies at the F. Skorina Gomel State University. Informed consent to participate in the experiment was obtained from all participants.

The organization of the research: to solve the research problems, a set of complementary methods was applied: theoretical analysis and synthesis of scientific and methodological literature data, anthropometric measurements (assessment of physical development), somatotyping (by the method of M.V. Chernorutsky) (Pavlova, 2008), functional diagnostics methods (monitoring of the cardiovascular and respiratory systems), pedagogical testing (determination of the level of physical fitness), pedagogical observation, pedagogical experiment, statistical skie materials processing methods.

To achieve this goal, the following research sequence was chosen.

At the first stage, somatotypical features of 21-35-year-old women involved in the physical activity of shaping were studied. Comparison of representatives of different somatotypes among themselves was carried out in terms of physical development, body composition, functional status and physical fitness, which made it possible to objectively identify patterns of development of indicators of the physical condition of individuals of various typological categories and determine the direction of recreational activity of shaping.

The morphofunctional diagnostics and determination of the level of physical fitness of the specific individual was carried out taking into account the phases of the individual ovarian-menstrual cycle (OMC). The above studies were conducted for each woman in the same, the most favorable - postmenstrual (6-12 day from the beginning of the cycle) or - postovulatory phase (16-24 day from the beginning of the cycle).

At the second stage, on the basis of the results obtained in preliminary studies, a methodology of shaping exercises based on an individually differentiated approach has been developed. The developed methodology is designed for a nine-month macrocycle (September-May) and includes three stages of improving

Table 1

Characteristics of the stages of recreational exercises (shaping) in the nine-month macrocycle

Preparation stage	Stage duration	Stage direction
Preparatory (September)	1 mesocycle, 4 microcycles	Diagnostics of the state of body kinetics, adaptation to training effects, mastering the technique of basic shaping movements in synchronization with the right breathing or learning new combinations with people who were engaged in the physical activity previously, strengthening the musculoskeletal system, drawing up individually differentiated shaping programs.
Main (October-March)	6 mesocycles, 24 microcycles	Individually-differentiated shaping effects with a predominantly specific orientation, body correction, optimization of body composition, improvement of the functional state of the cardiorespiratory system, increasing of the physical fitness level and work efficiency.
Stabilizing (April-May)	2 mesocycles, 8 microcycles	Maintenance and preservation of the achieved level of morphofunctional state, physical fitness level and the state of body kinetics.

shaping classes: preparatory, basic and stabilizing (Table 1).

The shaping program of a separate training consisted of several parts, which differed in various target orientations. In the main (developing) stage of the macrocycle, three shaping classes were designed for each selected somatotype.

Thus, the shaping program for women of the asthenic type included a predominantly force-oriented effect, with the aim of increasing the girth dimensions of individual parts of the body by gaining muscle mass. The exercise complexes are focused on the development of functional strength of postural muscles, flexibility in various parts of the spine. Interval training method - the work of short-term maximum power with moderate rest intervals from the position of morphological changes builds the synthesis of protein structures.

The shaping program for women of the normostenic type is distinguished by a complex aerobic-power orientation, in order to preserve the existing physique level by an equivalent reduction in the fat component and a moderate increase in muscle. The exercise complexes provided for an isolated study of each individual muscle group in a certain order with a distribution of the load on all muscle groups. Continuous work in the submaximal zone of intensity, determined by aerobic capacity contributes to an increase in strength and endurance, as well as effective fat burning.

For women of the hypersthenic type, the shaping program is distinguished by a predominant aerobic direction of action, with the aim of reducing the girth dimensions of individual parts of the body by reducing the fat component and preserving the muscle. Complexes of strength exercises are aimed at increasing the dynamic strength endurance of large muscle groups mainly by an eccentric method of implementation with an emphasis on the beginning of the main part to accelerate metabolic processes. Long-term aerobic exercises were performed in moderate intensity, which creates suitable conditions for the burning of fat.

Individual impact consisted of the distribution of loads, their duration, intensity and volume of loads depending on the hormonal background of the female body during the ovarian-menstrual cycle (OMC) (Chernikova, 2003, Vrublevskiy, 2008). The beginning and the end of a separate microcycle is determined by the duration of each phase of the biorhythmic phase of the body of an individual woman (Table 2).

The change in the choice of means and the intensity of the motion regime was determined by the certain phase of woman's OMC. In the course of the pedagogical experiment, all women, 3 times a week for 60 minutes, were trained according to the individually developed differentiated shaping programs, taking into account the type of somatic constitution and phase of the OMC.

At the third stage, the assessment of the effectiveness of the developed individually differentiated methods of recreational exercises of shaping was carried out, the dynamics and reliability of changes that occurred in the indicators of physical development, body composition, functional state and physical fitness of the studied population were determined.

Statistical analysis: when processing the experimental data, the arithmetic average value (X), arithmetic average error value (m), coefficient of variation (V%) were calculated. To check the reliability of the differences between the two average sample values, we used a parametric Student's t-test (t), the difference was considered significant at $p<0,05$.

Results. At the initial stage of

Table 2

The structure of the mesocycle, built taking into account the biorhythmic phases of the body of women of mature age

Microcycle duration	Phases of the OMC and their duration	Total training load	Motion regim (HR-heart rate)
Recovery, 6-8 days	Premenstrual 3-4 days, Menstrual 3-5 days	Average Small	50-60 % HR max
Developing, 7-9 days	Postmenstruals (estrogenic) 7-9 days	Large	60-70 % HR max
Stabilizing, 3-4 days	Ovulatory 3-4 days	Average	50-60 % HR max
Developing, 7-9 days	Postovulatory (progesterone) 7-9 days	Large	70-80 % HR max

the study, the somatotypological procedure allowed to establish that the majority of the examined women aged 21-35 years belong to the normostenic (N) type – 37,5% (n = 18), to the hypersthenic (H) type – 33,3% (n = 16), to asthenic (A) – 29,2% (n = 14).

In order to identify the differentiated orientation of the participants in shaping effects, the somatotype characteristics of women were determined. Analysis of the research results indicates the presence of distinctive features of morphological parameters in representatives of different somatotype (Fig. 1).

Therefore, when comparing the main morphological indicator - the body weight of representatives of different somatotypes, it was found that asthenic women had the lowest index and hypersthenic individuals had the maximum. This pattern can be explained by the different thickness and density of bone structures that form the musculoskeletal system, and the unequal size of the soft tissues necessary for the normal functioning of the body (Pavlova, 2008, Vasilets, 2005). This feature can be noted in terms of the circumferences of the main parts of the body. Analysis of measurements of the girth indicators of the body of women indicates that the asthenic type reliably differs by the smallest values of all the girth dimensions of the body from the normostenic and significantly from the hypersthenic type.

The study of body composition has made it possible to establish that representatives of the asthenic type have a weak development of fat and muscle mass of the body, women of the normostenic type have a moderate development, and individuals of the hypersthenic type have an increased level. Differences are statistically significant ($p<0,05$).

As a result of the assessment of the morphofunctional state, somatotype differences were also revealed (Fig. 2).

Thus, the representatives of the asthenic type have the lowest values of weight-height indicator, lung capacity (LC), heart rate (HR) at rest. It is noted that with asthenic type, the more economical and productive functioning of the cardiovascular system of the body is compared with the other two somatotypes. When conducting a Stange's test test, it was statistically significant (for a 5% level of significance) that women of asthenic and hypersthenic type showed lower results, which indicates a higher oxygen supply of the body in people of the normostenic type. The best results of the Genchy test are observed in hypersthenic women ($p<0,05$). The physical performance of women with asthenic type is predominantly satisfactory, with the normostenic and hypersthenic types assessed as average.

A comparative analysis of the physical fitness indicators of the subjects showed that, according to the results of physical tests, specific differences were observed among representatives of different somatotypes (Fig. 3).

It was revealed that in general, women of asthenic type have higher levels of coordination, speed and general endurance, a low level of development of flexibility and strength abilities. In individuals of the normostenic type, there is an average level of development of coordination, speed, flexibility, static hand muscle strength, speed abilities, strength endurance of the arms and shoulder girdle, general endurance and higher strength endurance level of the abdominal muscles, arm muscles and the cinder belt. In hypersthenic women, there is above average flexibility, the "explosive" strength of the muscles of the lower limbs and the static strength of the hand, a low level of coordination, speed, strength endurance of the abdominal muscles, muscles of the arms and shoulder girdle, speed abilities and general endurance.

Thus, the results of physical fitness of the subjects reflect their morphological and functional features. So, asthenics are characterized by low body weight, low level of girth dimensions, deficiency of fat and muscle mass, which causes a low level of manifestation of power abilities.

Normostenic people- optimal body weight, average level of girth

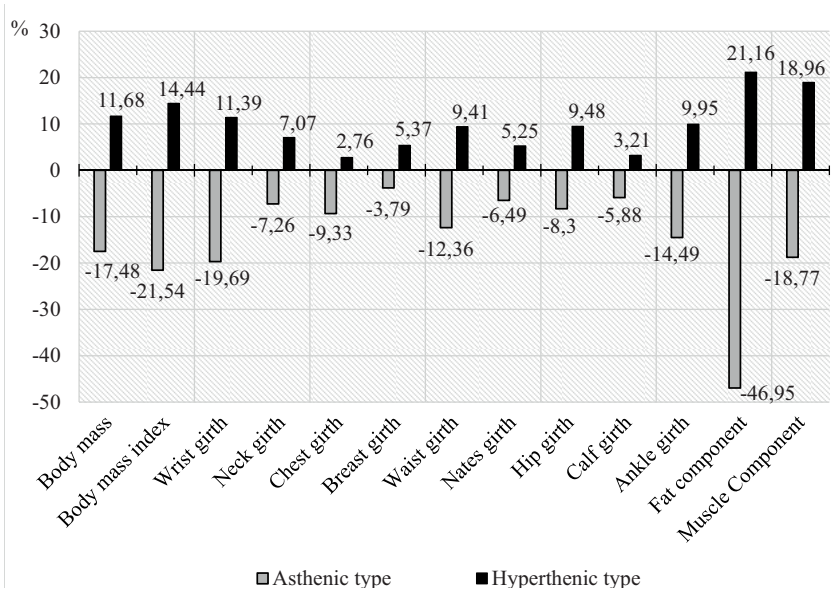

Fig. 1. The most significant typological differences (%) indicators of the morphological status of women 21-35 years
Note: morphological indicators of the normostenic type are taken for the zero mark.

dimensions, a well-developed muscular component with a small proportion of excess fat mass, which leads to a generally intermediate average level of development of physical abilities.

In hypersthenic women, there is a high probability of an overweight, a high level of girth dimensions, a high content of fat and muscle mass cause a decrease in the efficiency of the cardio-respiratory system, a low level of general endurance, not adaptability to long-term work, the complexity of speed and coordination abilities.

The results obtained in preliminary studies allowed us to substantiate a differentiated approach in constructing methods for applying loads of various kinds in recreational exercises (shaping) with women 21-35 years old. The differentiated orientation of the training shaping process was carried out taking into account the identified specific features of the physical condition of women of various types of somatic constitution. At the same time, the content of motion programs with established parameters of loads for each somatotype was adjusted in accordance with the individual functional state of women in each session, based on the phase composition of the OMC.

Analysis of the data obtained from the study of the physical development of the subjects indicates a statistically significant improvement ($p<0.05$) of the indicators in comparison with the initial data. Thus, the maximum decrease in body weight is observed in persons of the hyperstenic type by 7,7 kg and the normostenic type by 4,7 kg. At the same time, in women with asthenic type, this indicator increased by 2,3 kg. Owing to a decrease in body weight, the values of the Quetelet index have significantly changed by 11,0%, 7,5% and 4,3%, which indicates the achievement of proportionality of the physical development of normostenic and asthenic women according to standard values. It should be noted that in hypersthenic individuals a slight excess of this indicator is noted above the norm by 1,3%.

The organization of trainings taking into account the severity of body composition of the subjects of various somatotypes made it possible to obtain statistically significant ($p<0,05$) differences in the reduction of the fat component in women of the hyperstenic type by 20,2%, and of the normostenic type by 11,2%. There is an increase in this indicator in asthenic women by 13,4%, which indicates compliance with additional recommendations on nutrition.

The maximum increase in the muscular component was observed in the representatives of the asthenic type and was 18,4% ($p<0,05$), in the normostenic type 8,0% ($p<0,05$). At the same time, statistically significant ($p>0.05$) changes did not occur in hypersthenic individuals, which is obviously associated with an experimentally selected set of tools and methods, in which the main purpose of shaping work for this type of somatic constitution was to optimize the component body composition by preferentially reducing the fat component and preserving the muscle.

Analysis of measurements of girth indicates the effectiveness of the experimental method for the formation of a harmonious physique of women of various types of somatic constitution. Thus, girth indicators in women of hypersthenic type over the experiment period statistically significantly ($p<0,05$) decreased: chest girth by 3,3%, waist girth by 5,7%, nates girth by 4,6%, hip girth 9,3%. In women, the normostenic type is slightly smaller in terms of the dynamics of decrease in girths: chest – 2,2% ($p<0,05$), waist – 4,2% ($p<0,05$), nates – 2,4% ($p<0,05$), thigh – 3,1% ($p<0,05$). At the same time, the breast girth increased by 2,2% ($p<0,05$). In representatives of the asthenic type, there is a reverse dynamics (increase) in the girth parameters of the chest by 3,3% ($p<0.05$), breasts by 2,7% ($p<0,05$), nates by 2,8% ($p<0,05$), hip by 3,9% ($p<0,05$), a decrease by 2,8% ($p<0,05$) was observed in the waist girth, due to the pronounced forma-

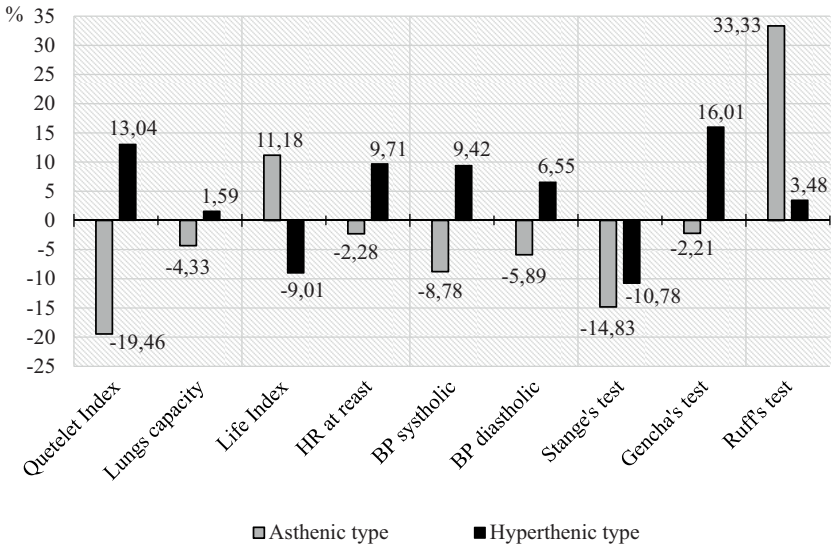

Fig. 2. The most significant typological differences (%) indicators of morphofunctional status of women 21-35 years
Note: morphofunctional indicators of the normostenic type are taken for the zero mark.

tion of muscle mass in these parts of the body.

When comparing physiometric indicators, the most significant growth rates of hand dynamometry are observed in women in each somatotype: in the asthenic type, the increase was 47,5%, in the normostenic type – 29,2%, in the hypersthenic type – 30,5%.

The level of lung capacity in all somatotype groups statistically significantly ($p<0,05$) increased compared with the initial data. The most pronounced changes in this indicator in hypersthenic individuals were 10,8%, in normostenic individuals – 8,2%, asthenic – 7,8%.

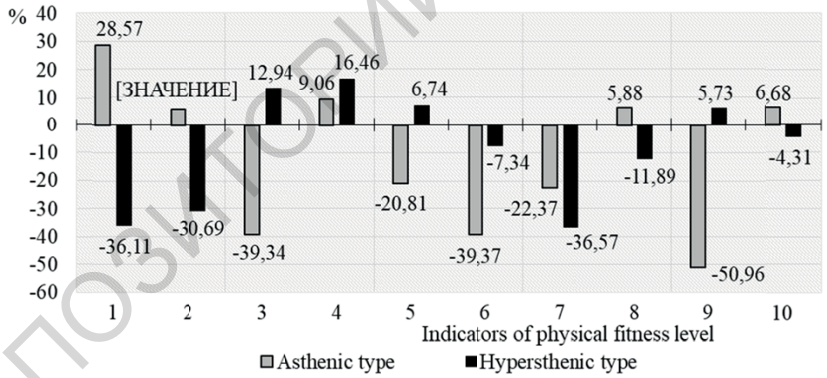

Fig. 3. The most significant typological differences (%) of physical fitness indicators for women aged 21-35
Note: a) indicators of physical fitness of the normostenic type are taken for the zero mark; b) 1 - "Flamingo" balance exercise, 2 - speed of hand movement, 3 - bending forward from a sitting position, 4 - a long jump, 5 - hand dynamometry, 6 - raising the body from a supine position for 30s, 7 - crossbar hanging, 8 - shuttle run 10x5m, 9 - push-ups (from the knees) for 30s, 10 - running 1000m

Indicators of Shtange and Genchi also statistically significantly (for 5% significance level) improved, the highest increase was observed in asthenic women 14,2% and 14,6%, in hypersthenic individuals 13,8% and 14.1%, in normosthenic women 8,6% and 11,7%, respectively.

The decrease of extra weight of women of hyperstenic and normoshenic type served as the normalization of the functional parameters of the cardiovascular system. Thus, the resting heart rate decreased by 12,1% and 8,7% ($p<0,05$), systolic blood pressure by 9,8% and 5,6% ($p<0.05$), diastolic by 6,7 % and 8,0% ($p<0,05$).

The results of the Rufier test also confirm the efficiency of the individually developed and differentiated method of shaping for women. In all somatotic groups the level of general physical performance increased significantly ($p<0,05$), reflecting the economical functioning of the cardiovascular system. In representatives of the normostenic type, the increase was 32,5% - a good level of cardiac functional reserves, in women of the asthenic and hypersthenic types – 28,7% and 28,1%, respectively. This is the average level of adaptation of the cardiovascular system.

An analysis of the physical fitness indicators of the subjects as part of the experiment revealed the presence of a statistically significant ($p<0,05$) improvement in a significant part of the indicators - the "Flamingo" balance exercise, the speed of arm movement, leaning forward from a sitting position, a long jump, raising the body from supine positions for 30s, push-ups from the knees (30s), running 1000m - in individuals of each somatotype. In the other indicators - hanging on a high crossbar on bent arms, shuttle running 10x5m showed only positive dynamics ($p>0,05$).

Discussion. Among women of the first period of mature age who are engaged in shaping, there is a somatotype irregularity of the con-

tingent involved. Comparison of the obtained results with other authors (Vengerova, 2011; Ershkova, 2015; Kukoba, 2011; Savin, 2017) indicates a tendency to separate women according to body types and the differentiated influence of recreational health-improving activities on their physical development.

In this study, the information of other authors (Vengerova, 2011; Yershkova, 2015; Kukoba, 2011; Mamylina, 2016; Savin, 2017; Saitov, 2011) is confirmed and supplemented with information about the inextricable connection of the features of physical development with the functional state and physical fitness, as characteristics that determine the general physical condition of women aged 21-35 in the process of recreational training. It was found that women of the first period of mature age of different somatotypes have specific features that manifest themselves in a significant difference in not only morphological parameters, but also indicators of the functional state of the cardiorespiratory system, physical fitness and level of general performance, which necessitates a differentiated approach in the process of improving shaping trainings.

A number of authors (Vengerova, 2011; Mamylina, 2016; Savin, 2017; Chernikova, 2003, Vrublevskiy, 2008) provide evidence of the close relationship between the ability of women to endure physical trainings and the phases of the ovarian-menstrual cycle. It is noted that changes in the hormonal status (Chernikova, 2003), occurring in the body of a woman throughout the menstrual cycle, significantly affect the dynamics of women's performance. In this regard, in the present study, a feature of monitoring the morphofunctional state and physical fitness of women of the first period of mature age is taking into account the phases of the individual ovarian-menstrual cycle. The above studies were carried out for each woman in the most favorable phase (postmenstrual or - postovulatory).

Modern recreational physical culture specialists (Vengerova, 2011; Kukoba, 2011; Mamylina, 2016; Savin, 2017; Chernikova, 2003; Drabik, 2006) share the opinion that to optimize the physical condition of women in the process of recreational training individually differentiated approach is necessary. However, individualization and differentiation is often carried out on the basis of methods that consider mainly gender and age standards of physical and functional fitness, without taking into account the somatotype characteristics of women and the biological patterns of functioning of their body.

In contrast to the above stated, in order to provide the optimal level of health of women aged 21-35 and achieve their best physical form, for our study was chosen the way of rationally qualitative selection of means, methods and parameters of physical activity. This way is to the maximum extent appropriate for the individual-typological and physiological characteristics of the female body, which is especially important for people of the first period of mature age.

A methodology for individually differentiated designing of recreational shaping classes for women aged 21-35 years was scientifically substantiated and developed for the first time. A feature of this technique is the combination of individual characteristics of women and the phase of their specific biological cycle, which greatly protects the women's body from physical and psychophysiological over exercising. At the same time, the specific orientation of individually differentiated shaping programs of recreational trainings with women of the first period of mature age of various somatotypes has been established, allowing to apply physical activity to the development of certain physical abilities and thus, to achieve the planned morphofunctional changes.

The content of individually differentiated shaping programs goes with the thoughtful selection of the means and methods of trainings, sensible rationing of various motion exercises, depending on the somatotypical goals and the current state of those engaged in the trainings, which allows more exact management of the morphofunctional improvement of the body of women of different somatotypes and to achieve a higher level of their fitness.

The advantage of our methodology is the productive result of the improvement of physical condition indicators (physical development, body composition, functional condition, physical fitness) of women aged 21-35 years after the completion of the nine-month macrocycle of individually differentiated shaping exercises.

Information of other authors (Vengerova, 2011; Kukoba, 2011; Mamylina, 2016) about the positive effect of shaping on the physical condition of women aged 21-35 is confirmed and supplemented.

Findings. As a result of the conducted pedagogical research, it was established that the morphological criterion - the somatotype - is a significant and necessary condition for the differentiation of the process of physical training and health activities of shaping with the mature women. The distinctive somatotypical features of physical development, component composition of the body, functional state, physical fitness of women aged 21-35 years were revealed revealed. The specific differentiated orientation of the training shaping effects for women of each somatotype was determined. An individually-differentiated method of improving shaping classes for women aged 21-35 years based on their somatic-type features and the phasic biorhythms of the female body was developed.

The combination of taking into account the constitutional features of women and the phase of their specific biological cycle contributes to the achievement of a higher cu-

mulative effect of the organism's adaptation to training shaping effects, increasing the level of morphofunctional state and physical fitness. Individually differentiated approach allows managing the morphofunctional improvement of the body of women of the first period of mature age more purposefully, to achieve the optimum level of their physical fitness. The effectiveness of an individually differentiated method of shaping trainings is confirmed by a statistically significant ($p<0,05$) improvement in almost all recorded indicators of physical, functional state and physical fitness of women aged 21-35 years.

Conflict of interest. The authors declare that there is no conflict of interest.

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